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EXAMINER	
SUNG, GERALD LUTHER	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/524,523
Filing Date: February 11, 2005
Appellant(s): TIEMANN ET AL.

John P. Musone
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 13 June 2008 appealing from the Office action mailed 1 April 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

No evidence is relied upon by the examiner in the rejection of the claims under appeal.

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babcock et al. GB 626,249 in view of Albrecht et al USPN 6,415,724 B1in further view of DuBell et al. USPN 3,978,662.

2. Regarding claim 8, Babcock et al. disclose improvements to a combustion chamber where the installations include an access means to access the interior of the combustion chamber. Babcock et al. disclose that "[i]n such installations the enclosing walls are often fluid cooled to provide protection from high furnace temperatures and further are preferably made gas tight throughout to avoid the troublesome and dangerous condition resulting from the ejection of high temperature gases and other products of combustion" (page 1, lines 27-35). DuBell et al. are relied upon to teach well known methods in the art where cooling air is passed in between an inner liner 50 and a wall 48. Furthermore, Babcock et al. teach the motivation to include a wall opening in a combustion chamber for the purposes of accessing the interior of the combustion chamber for maintenance purposes. With regards to the wall opening, Babcock et al. disclose "[w]hen a wall opening is provided through which access may be had to the interior for cleaning or other purposes it is essential that the opening be fitted with closure means suitably constructed and arranged so as to maintain the continuity of the gas-tight wall construction" (page 1, lines 35-42). Albrecht et al. disclose a water jacketed high-temperature stretcher accessible door for a boiler which includes inner

cooling chambers. One of ordinary skill in the art at the time of the invention would have found it obvious to modify the combustion chamber in Babcock et al. with well known methods of combustion chamber wall cooling such as those taught by DuBell et al. in order to provide an efficient cooling means to cool the combustion chamber and a cooled door such as the door taught by Albrecht et al. in order to provide a means to access the interior of the combustion chamber for maintenance purposes. Furthermore, since Babcock et al. disclose a "closure means... wherein at least one port is provided for the admission of cooling gaseous fluid to the passage through the door frame member when the door is closed," (page 6, lines 20-25) one of ordinary skill in the art, in light of the well known combustion chamber cooling means taught by DuBell et al., would have found it obvious to combine the elements in Babcock et al. and Albrecht et al. in order to provide a more efficient cooling means where the continuity of the cooling chambers in the combustion chamber and the door would have yielded a more cost effective and efficient system by reducing the number of cooling systems required by the combustion chamber. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combustion chamber disclosed by Babcock et al. with a cooling chamber 46 taught by DuBell et al. and an access door taught by Albrecht et al.

3. Regarding claim 11, Babcock et al., as previously modified by Albrecht et al. and DuBell et al., disclose an access means that when connected would have directly connected the cooling chambers in the door and the combustion chamber wall when the door is closed.

4. Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Babcock et al. GB 626,249 in view of Albrecht et al USPN 6,415,724 B1in further view of DuBell et al. USPN 3,978,662 and Stanke USPN 4,189,352.

5. Regarding claims 12-15, Babcock et al., as previously modified by Albrecht et al. and DuBell et al., disclose all elements except a fixing element as claimed in claims 12-15. Referring to figures 1 and 4 below, Stanke teaches a sealing member 32 which is designed to seal a coke oven door against a coke oven body 20. The seal member 32 is fixed to the periphery of the door by bolts 36 and along with other latching elements supports and seals the door and holds the chamber wall element against the door, where a first side supports the door and a second side is attached to the combustion chamber wall. The U-shaped seal member 32 projects into the door element in a manner where the door can be opened and closed without removing the fixing element. One of ordinary skill in the art at the time of the invention would have found it obvious to use sealing and latching means of high temperature chamber doors such as those taught by Stanke to provide a sealing and supporting means for a high temperature chamber door and increase the efficiency of the chamber door by properly sealing the opening.

FIG. 4

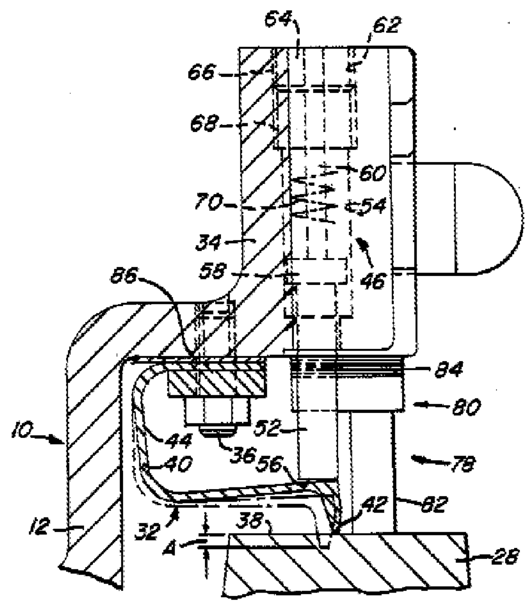
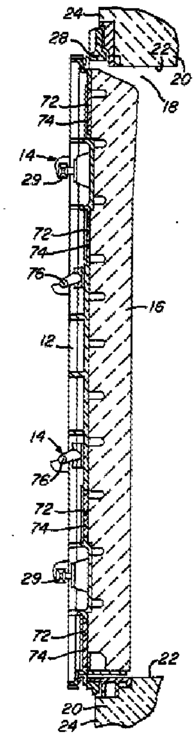


FIG. 1



(10) Response to Argument

Claims 8 and 11 stand rejected in light of the disclosure of Babcock et al. in view of the teachings of Albrecht et al. and DuBell et al.. Babcock et al. disclose a combustion chamber with an improved access door and frame configuration so as to provide access to the interior of a combustion chamber. Babcock et al. disclose a closure means for openings in the walls of chambers, where the closure means may be applied to boilers of the kind having combustion chambers. Babcock et al. disclose that in many combustion chambers the enclosing walls are often fluid cooled to provide protection from high furnace temperatures and further are preferably made gas-tight throughout to avoid the troublesome and dangerous condition resulting from the ejection of high temperature gases and other products of combustion. Babcock et al. also

disclose a combustion chamber assembly wherein at least one port is provided for the admission of cooling gaseous fluid to the passage through the door frame member when the door is closed.

Albrecht et al. teach a fluid cooled access door to gain access to the interior of a boiler of the kind have a combustion chamber, where the cooling fluid used it water. In applications where combustion chambers have access doors present, a fluid cooled access door provides various benefits recognizable to one of ordinary skill in the art. A fluid cooled access door allows the area of the combustion chamber covered by the door to be of a more uniform temperature with relation to the rest of the chamber and increases the lifespan of the door element by reducing the temperature extremes that the door element is exposed to.

DuBell et al. teach a typical combustion chamber in which the inner combustion zone is surrounded by an air channel which lines the combustion zone. Cooling fluid is pumped through a liner surrounding the combustion chamber in order to provide a means to cool the combustion chamber. Since combustion chambers are subjected to relatively high temperatures, it is often necessary and typically beneficial to provide a cooling means for cooling the combustion chamber. Well known cooling means in the art often include liners surrounding the combustion chamber in order to provide fluid for impingement or effusion cooling. It is evident that a cooling means was known to be desirable at the time of the disclosure of Babcock et al. since Babcock et al. disclose the enclosing walls of combustion chambers are often fluid cooled to provide protection from the high furnace temperatures.

The Appellant argues that the Examiner has erred in his conclusion that the combination of the applied references yields all the claimed elements, specifically a combustion chamber wall cooling chamber connected to the manhole cover cooling chamber and the inner cooling passage of the door is directly connected to the wall cooling passage, and that a more cost effective and efficient system is insufficient motivation to provide a connection between a fluid cooled access door as taught by Albrecht et al. and a combustion chamber liner as taught by DuBell et al. The Examiner maintains that one of ordinary skill in the art at the time of the invention would have found it obvious to connect the combustion chamber cooling channel formed by the liner as taught by DuBell et al. with a fluid cooled access door cooling chamber as taught by Albrecht et al. in order to provide a more cost effective and efficient cooling means for a combustion chamber with an access door. The fluid cooled access door taught by Albrecht et al. and the cooling liner taught by DuBell et al. provide obvious improvements known to one of ordinary skill in the art at the time of the invention over the combustion chamber disclosed by Babcock et al.; however, as disclosed in the prior art, the fluid cooled access door and the fluid cooled wall liner are independent of each other (e.g. the cooling passages found in the door and in the walls are not connected). The combination of the door and the wall liner as independent cooling passages as presented in the prior art would inherently require multiple cooling circuits. A separate pump and piping system would be required to supply the cooling fluid to each of the independent cooling channels located in the combustion chamber walls and door. One of ordinary skill in the art at the time of the invention would have found it obvious, or at

the very minimum obvious to try, to combine the independent cooling systems in the door and combustion chamber wall in an effort to reduce the amount of equipment necessary to supply the cooling fluid while maintaining the benefits of both of the cooling channels. In order to reduce the number of pumps, the cooling chambers found in the door and the combustion chamber wall must be connected to allow the cooling fluid to flow to both cooling passages. Since pumps are an energy consuming devices, a reduction in the number of pumps required by a cooling system would lead to a more cost effective and efficient cooling system because less energy would be required to drive fewer pumps. Furthermore, one of ordinary skill in the art at the time of the invention would have recognized that a single cooling circuit with a common cooling fluid would have provided a more uniform temperature across the combustion chamber than a cooling system comprising of two independent systems. Since the temperature of the cooling fluid is related to the surface area which it cools, a system with two independent cooling systems over two different cooling surface areas can potentially provide cooling fluids at different temperatures. A non-uniform temperature gradient can form around the combustion chamber, across the walls and the door, in the event the cooling fluids are at different temperatures. A single cooling circuit would reduce the possibility of non-uniform temperature gradients forming around the combustion chamber as a result of temperature differences in the cooling fluids. In light of this, the Examiner is further inclined to believe that one of ordinary skill in the art at the time of the invention would have found it obvious to combine the cooling systems found in the door and the combustion chamber wall.

Further regarding claim 11, the Examiner contends that the limitation "directly connected" vaguely defines the relationship between the combustion chamber wall cooling passage and the door cooling passage. Since the Examiner believes it would have been obvious to one of ordinary skill in the art at the time of the invention to connect the two cooling passages such that fluid flow is capable between the two passages in an effort to reduce the number of pumping systems required to supply cooling fluid to each passage, this relationship inherently provides a direct connection. Claim 11, as broadly presented, provides no structural details on how this direct connection is to be achieved.

Claims 12-15 stand rejected in light of the disclosure of Babcock et al. in view of the teachings of Albrecht et al., DuBell et al., and Stanke. Stanke teaches a metal seal of generally u-shaped cross section positioned between a door and a wall. The seal is positioned to provide sealing between the door and the wall of a coke oven door over the operating temperatures of the oven, so that combustion gases are not leaked through the opening. One of ordinary skill in the art at the time of the art at the time of the invention would have found it obvious to provide a door seal such as the one taught by Stanke to the combustion chamber disclosed by Babcock et al., as previously modified by DuBell et al. and Albrecht et al., in order to provide a seal that is capable of sealing a door through the operating temperatures of a high temperature chamber.

The Appellant argues that the seal member taught by Stanke and the U-shaped support member claimed in claims 12-14 are different in purpose and function and that the seal member taught by Stanke cannot inherently be said to function as the claimed

fixing element since it is purposefully flexible and is incapable of carrying the requisite mechanical loads. Although the Appellant's intended invention may differ substantially in purpose and function from the applied seal as taught by Stanke, the Examiner maintains that the claimed invention does not distinguish over the applied seal. Claim 12 merely states that the fixing element supports a cover element (i.e. the door) and simultaneously holds a liner element adjacent to the manhole cover against the combustion chamber wall. The Examiner contends that the function of the seal taught by Stanke is to provide sealing between the door and the wall and that this function would inherently mean that the seal, as taught by Stanke, at least partially supports the door while simultaneously holding the liner element adjacent to the door. The Appellant further argues that because the seal is capable of deforming, it is inherently incapable of supporting a load; however, the Examiner must point out that the seal is made of a formable metal and therefore must be capable of supporting some load, even if the load approaches zero. The mere fact that the seal is deformable does not inherently mean the seal is incapable of supporting a load. Further, claims 12-14 are silent to the required load that must be supported and do not present any limitations that require the fixing element to bear the entire load of the door and wall.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner’s answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Gerald Sung
Patent Examiner
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27 June 2008

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